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ANNCR: THE VOICE OF AMERICA PRESENTS...SCIENCE NOTEBOOK...A SUMMARY OF EVENTS IN SCIENCE, MEDICINE AND TECHNOLOGY. EACH WEEK AT THIS TIME, WE BRING YOU REPORTS ON DEVELOPMENTS THAT MAY AFFECT OUR DAILY LIVES. WITH THE FIRST STORY, HERE IS YOUR SCIENCE EDITOR_____:

(ENVIRONMENT AND IDEOLOGY -- _____ 3-2865 -- DOSA)

EDITOR: TOO MUCH TECHNOLOGY CAN BE HARMFUL TO THE QUALITY OF LIFE AND ACCORDING TO A UNIVERSITY OF MICHIGAN PROFESSOR, IT CREATES MORE SERIOUS SOCIAL AND ENVIRONMENTAL PROBLEMS IN THE COMMUNIST COUNTRIES THAN IN THE WEST. HERE IS _____ WITH THAT STORY.

VOICE: HENRYK SKOLIMOWSKI IS A PROFESSOR OF PHILOSOPHY AT THE UNIVERSITY OF MICHIGAN'S COLLEGE OF ENGINEERING. THE POLISH-BORN SCIENTIST DECIDED TO STUDY HOW A COMMUNIST COUNTRY -- POLAND -- IS COPING WITH -- WHAT HE CALLS -- ITS "PLAGUE OF AFFLUENCE." HE WANTED TO FIND OUT IF THE PROBLEMS DERIVED FROM TECHNOLOGICAL PROGRESS ARE PECULIAR TO THE UNITED STATES AND OTHER WESTERN COUNTRIES, PERHAPS BECAUSE OF THE WAY THEY GOVERN THEMSELVES.

PROFESSOR SKOLIMOWSKI WAS NOT ADMITTED TO POLAND TO SEE FIRST HAND THE EFFECTS-OF HIS NATIVE COUNTRY'S INCREASING EMPHASIS ON TECHNOLOGY. INSTEAD, HE SPENT SIX MONTHS STUDYING POLISH NEWSPAPERS, CULTURAL AND LITERARY JOURNALS, AS WELL AS OFFICIAL GOVERNMENT REPORTS. HE

VOICE: FOUND THAT DEGRADATION OF THE ENVIRONMENT AND THE
(CONT'D) "ALIENATION AND INCREASING EGOTISM AMONG YOUNG PEOPLE"
ARE SOME OF THE PRICES THAT BOTH EAST AND WEST MUST PAY
FOR TECHNOLOGICAL PROGRESS.

ONE MAJOR DIFFERENCE BETWEEN EAST AND WEST, AS
PROFESSOR SKOLIMOWSKI SEES IT, IS THAT THE COMMUNIST
COUNTRIES MAY BE FACING A MORE SEVERE SITUATION THAN THE
WEST, BECAUSE MATERIAL PROGRESS, INCLUDING SCIENCE AND
TECHNOLOGY, IS PART OF THE MARXIST IDEOLOGY. CONSEQUENTLY,
HE SAYS, NOBODY DARES "TO CRITICIZE MATERIAL PROGRESS AND
ECONOMIC GROWTH FOR FEAR OF BEING OSTRACIZED AS
IDEOLOGICALLY SUBVERSIVE."

THE SAD RESULTS OF, WHAT PROFESSOR SKOLIMOWSKI CALLS
"TECHNICAL EUPHORIA," ARE ALL TOO APPARENT IN POLAND. HE
NOTES THAT IN KRAKOW, FOR EXAMPLE, BEAUTIFUL ROMANESQUE
CHURCHES ARE BEING EATEN AWAY BY FUMES FROM STEEL PLANTS
WHICH, IN ORDER TO MEET GOVERNMENT QUOTAS, AT TIMES REMOVE
THEIR FILTERS, DUMPING POISONS DIRECTLY INTO THE RIVER,
AND TONS OF GARBAGE INTO THE AIR."

THE UNIVERSITY OF MICHIGAN PROFESSOR FINDS IT "IRONIC
THAT THE POLISH PEOPLE, WHO WOULD NOT KNEEL TO NAZIS
WHO ATTEMPTED TO ANNIHILATE POLISH CULTURAL HERITAGE AND
THE NATION ITSELF, ARE NOW DESCRIBED BY ONE POET AS
KNEELING IN FRONT OF BANK ACCOUNTS, AUTOS AND REFRIGERATORS,"
SURRENDERING THEIR VALUES ON THE ALTAR OF MATERIAL PROGRESS.

(RADIO RISKS ASSESSED -- 3-2865 -- DOSA)

EDITOR: CIGARETTE MANUFACTURERS IN THE UNITED STATES ARE REQUIRED BY LAW TO WARN THE PUBLIC THAT THEIR PRODUCT IS DANGEROUS TO HEALTH. THE U.S. ENVIRONMENTAL PROTECTION AGENCY IS NOW ATTEMPTING TO FIND OUT WHETHER RADIO AND TELEVISION BROADCASTERS SHOULD BE ALSO REQUIRED TO BROADCAST SUCH WARNING. _____ HAS DETAILS.

VOICE: SOME FORMS OF ELECTROMAGNETIC RADIATION COULD BE DANGEROUS TO HEALTH. AT CERTAIN FREQUENCIES, THIS RADIATION MAY DESTROY TISSUES IN THE BODY. AT OTHER FREQUENCIES, ELECTROMAGNETIC RADIATION MAY CAUSE GENETIC DAMAGE, ALTHOUGH TOO LITTLE IS KNOWN ABOUT THE NATURE OF THAT PARTICULAR RISK.

HOUSEWIVES HAVE BEEN WARNED IN THE PAST THAT THEIR MICRO-WAVE OVENS MAY EMIT HARMFUL RADIATION. SIMILAR WARNINGS HAVE BEEN GIVEN TO PEOPLE OPERATING WITH POWERFUL RADAR EQUIPMENT. AND NOW, THE ENVIRONMENTAL PROTECTION AGENCY WANTS TO FIND OUT WHETHER RADIO AND TELEVISION TRANSMITTERS ARE DANGEROUS TO THE PUBLIC. A SPECIALLY BUILT RADIATION MONITORING VAN WILL CHECK THE INTENSITY OF BROADCAST RADIATION FROM TELEVISION AND ULTRASHORTWAVE RADIO TRANSMITTERS IN MAJOR CITIES OF THE UNITED STATES.

ELECTROMAGNETIC RADIATION-- RADIO WAVES -- IS PRESENT EVERYWHERE IN THE ENVIRONMENT IN SMALL AMOUNTS. THE NEW STUDY WILL BE AIMED AT MEASURING THE AMOUNT OF THAT RADIATION IN DIFFERENT PARTS OF THE COUNTRY AND FIND OUT

VOICE: WHAT HEALTH EFFECTS, IF ANY, THE NATURAL AND MANMADE RADIO
(CONT'D)

WAVES CAN HAVE ON HUMANS.

THE ENVIRONMENTAL PROTECTION AGENCY RADIATION MONITORS WILL SURVEY MORE THAN A DOZEN SITES IN EACH CITY, PARTICULARLY IN THE VICINTY OF RADIO, TELEVISION AND MICROWAVE TRANSMITTERS. A SMALL COMPUTER IN THEIR VAN WILL BE USED TO PROCESS THE DATA IMMEDIATELY. WHEN SUFFICIENT INFORMATION IS ACCUMULATED FROM ALL OVER THE COUNTRY, SCIENTISTS WILL BE ABLE TO DETERMINE WHETHER THE BROADCAST STATIONS POSE ANY REAL RISK TO THE ENVIRONMENT AND PUBLIC HEALTH AND, IF THEY DO, HOW TO COPE WITH THAT PROBLEM.

(TREE RING ALMANCS -- 3-2865 -- RICHARDS)

EDITOR: SCIENTISTS HAVE LONG BEEN ABLE TO DETERMINE HOW MUCH IT RAINED IN A GIVEN YEAR BY STUDYING TREE RINGS. NOW, THEY BELIEVE THAT TREE RINGS MAY GIVE A CLUE TO LEVELS OF POLLUTION IN A GIVEN YEAR AS WELL. _____ HAS THE REPORT.

VOICE: BECAUSE THEY GAIN A RING DURING EACH YEAR OF GROWTH, TREES PROVIDE A KIND OF LIVING HISTORY FOR SCIENTISTS TO STUDY. THE WIDTH OF EACH RING, FOR EXAMPLE, GIVES A CLUE AS TO HOW MUCH RAIN FELL DURING THAT YEAR.

A SCIENTIST AT PENNSYLVANIA STATE UNIVERSITY BELIEVES TREES CAN PROVIDE A KIND OF POLLUTION ALMANAC AS WELL. DOCTOR K.K.S. PILLAY TOOK SLABS OF FELLED TREES AND STUDIED THEM TO DETERMINE WHAT KIND OF ELEMENTS, INCLUDING POLLUTANTS., THOSE TREES ABSORBED FROM THE ATMOSPHERE EACH YEAR.

VOICE: DOCTOR PILLAY USED A PROCESS CALLED NEUTRON ACTIVATION
(CONT'D) ANALYSIS TO MEASURE THE TRACE ELEMENTS PRESENT IN EVERY
TREE. THE PROCESS INVOLVES PASSING NEUTRONS THROUGH A
SAMPLE FROM THE TREE IN A REACTOR TO DETERMINE WHAT
CHEMICAL MATERIALS ARE IN THAT SAMPLE.

USING THIS METHOD AT THE NUCLEAR REACTOR AT THE UNIVERSITY,
DOCTOR PILLAY COLLECTED DATA ON THIRTY ELEMENTS --
INCLUDING MERCURY, ZINC, SILVER AND IRON -- IN OAK,
CHERRY AND LOCUST TREES.

THE PENNSYLVANIA PROFESSOR FOUND THAT MERCURY HAD
INCREASED IN THE TREE RINGS STARTING IN THE NINETEEN
FIFTIES. THIS, HE BELIEVES, COULD BE DUE TO THE
INCREASED USE OF INDUSTRIAL MERCURY SINCE THAT TIME.

DOCTOR PILLAY SAYS THAT ONCE THE PROCEDURE IS PERFECTED,
NEUTRON ACTIVATION ANALYSIS CAN BE USED TO FIND OUT
WHERE POLLUTANTS TRAVEL, HOW THEY ACCUMULATE AND WHICH
ONES ARE RETAINED IN WHICH TREES.

THIS, HE SAYS, WILL ENABLE SCIENTISTS TO DETERMINE WHICH
INDUSTRIAL PROCESSES ARE DANGEROUS TO LIVING THINGS.

(TOMORROW'S WEATHER STATION -- 3-2865 -- DOSA)

EDITOR: METEOROLOGISTS OF THE U.S. NATIONAL WEATHER SERVICE
WILL SOON BE ABLE TO MAKE FASTER AND MORE ACCURATE
FORECASTS, THANKS TO A NETWORK OF NEW, AUTOMATED
WEATHER STATIONS. HERE IS _____ WITH A
REPORT.

VOICE: FORECASTING THE WEATHER REQUIRES IMMENSE AMOUNTS OF INFORMATION, SUCH AS DATA ON TEMPERATURES AND WIND SPEEDS, WIND DIRECTIONS, SATELLITE PHOTOGRAPHS OF THE CLOUD COVER, AS WELL AS WEATHER REPORTS FROM DISTANT REGIONS. THE METEOROLOGIST WHO PREDICTS TOMORROW'S WEATHER IS SOMETIMES ALMOST BURIED IN INFORMATION, MUCH OF WHICH HE MAY NOT NEED AT ALL.

THE NEW, AUTOMATED WEATHER STATION NETWORK WHICH WILL BE INSTALLED OVER THE NEXT FIVE YEARS, WILL EASE THE BURDEN OF THE WEATHERMAN. THE SYSTEM WILL BRING TO HIM THE INFORMATION MUCH FASTER THAN HE GETS IT TODAY, BUT HE WILL RECEIVE ONLY THE DATA HE NEEDS. AND HE WILL RECEIVE IT THROUGH HIS OWN MINICOMPUTER WHICH IS ELECTRONICALLY LINKED TO A NETWORK OF SIMILAR INSTRUMENTS THROUGHOUT THE UNITED STATES.

THE WEATHERMAP COMES FROM THE DISTANT METEOROLOGICAL CENTERS BY WAY OF A MACHINE WHICH REQUIRES TODAY TEN MINUTES TO PRINT THE MAP ON PAPER. IN THE NEW SYSTEMS, THE SAME MAP WILL BE TRANSMITTED IN FIFTEEN SECONDS, INSTEAD OF TEN MINUTES, AND IT WILL APPEAR ON A TELEVISION SCREEN. IF THE METEOROLOGIST WANTS TO SAVE THE MAP FOR LATER USE, HE CAN STORE IT IN THE COMPUTER.

WRITTEN MESSAGES ARE ALSO GOING TO BE MOVING MUCH FASTER THAN THEY DO TODAY. THEY WILL BE TRANSMITTED AT THE RATE OF THREE-THOUSAND WORDS PER MINUTE, INSTEAD OF ONE-HUNDRED WORDS A MINUTE AS THEY ARE TODAY.

VOICE: THE MINICOMPUTER NETWORK OF THE WEATHER STATIONS OF THE
(COND'T)
FUTURE WILL GIVE METEOROLOGISTS THE MOST UP-TO-DATE
INFORMATION, ENABLING THEM TO MAKE ACCURATE FORECASTS OF
DEVASTATING TROPICAL STORMS OR PLEASANT, BALMY WEATHER
ALIKE. AND THE SERVICE WILL BE AVAILABLE TO PRIVATE
FORECASTERS -- OF AIRLINES, FOR EXAMPLE -- WHO WILL BE
ABLE TO PURCHASE OR RENT THE AUTOMATED WEATHER STATIONS.

(CHEMICAL PEST CONTROL QUESTIONED -- 3-2865 -- DOSA)

EDITOR: THE U.S. NATIONAL RESEARCH COUNCIL HAS CALLED FOR
ALTERNATIVE TECHNOLOGIES TO TAKE THE PLACE OF CHEMICALS
IN PEST CONTROL. _____ HAS DETAILS.

VOICE: CONTROLLING PESTS WITH CHEMICALS IS BECOMING
INCREASINGLY DIFFICULT, AND SERIOUS PROBLEMS WILL BE POSED
FOR AGRICULTURE AND PUBLIC HEALTH, UNLESS ALTERNATIVE
TECHNOLOGIES ARE PERFECTED. THIS IS THE CONCLUSION OF A
STUDY BY A GROUP OF SCIENTISTS FOR THE NATIONAL RESEARCH
COUNCIL OF THE U.S. NATIONAL ACADEMY OF SCIENCES.

CHEMICAL PEST CONTROL HAS LONG BEEN REGARDED AS ONE OF THE
MAJOR FACTORS THAT HAS MADE THE HIGH PRODUCTIVITY OF
AMERICAN AGRICULTURE POSSIBLE. BUT A NUMBER OF NEW
DEVELOPMENTS ARE UNDERCUTTING THE EFFECTIVENESS OF CHEMICAL
PESTICIDES. FOR ONE THING, MANY PEST SPECIES ARE
DEVELOPING A GENETIC RESISTANCE TO THE CHEMICALS USED TO
CONTROL THEM. ANOTHER FACTOR IS THE PROFUSION OF NEW,
STRINGENT REGULATIONS, PROMPTED BY INCREASING CONCERN
OVER ENVIRONMENTAL AND HUMAN HEALTH HAZARDS.

VOICE: THE NATIONAL RESEARCH COUNCIL STUDY OFFERS SEVERAL NEW
(CONT'D) APPROACHES TO REPLACE CHEMICAL PEST CONTROL AS IT IS PRACTICED
TODAY. FOR EXAMPLE, IT SUGGESTS THE DEVELOPMENT OF
SO-CALLED "THIRD-GENERATION" CHEMICALS WHICH WOULD ACT
ONLY ON CERTAIN PESTS BUT WOULD REMAIN RELATIVELY HARMLESS
TO ANIMALS. ANOTHER SUGGESTION HAS BEEN TO BREED PEST-
RESISTANT VARIETIES OF ALREADY EXISTING PLANTS.

FINALLY, THE MORE THAN FIFTY SCIENTISTS PARTICIPATING IN
THE STUDY WARNED THAT OUR KNOWLEDGE ABOUT THE CONCENTRATION
OF PESTICIDES IN THE ENVIRONMENT REMAINS "HIGHLY
INADEQUATE" AND IT NEEDS TO BE EXTENDED BY CONTINUOUS
STUDY AND MONITORING.

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